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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/829,164	04/22/2004	Erol Girt	146712004900	5750

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EXAMINER

RICKMAN, HOLLY C

ART UNIT	PAPER NUMBER
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1773

DATE MAILED: 08/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/829,164

Applicant(s)

GIRT ET AL.

Examiner

Holly Rickman

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 1-11, 21 and 22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>4/22/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Claims 1-11 and 21-22 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected method, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 5/22/06.

Claim Objections

2. Claim 15 is objected to because of the following informalities: “the first interlayer comprises least 50 at. % of Co” should be amended to recite “**at least**”. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 15 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 15 recites the limitations "the first interlayer" and "the second interlayer" in line 2. There is insufficient antecedent basis for these limitations in the claim.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 12-13, 15-17, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. (US 6759149) in view of Oikawa et al. (US 2003/0138671).

Chen et al. disclose longitudinal magnetic recording medium having a substrate, a bcc Cr-based non-magnetic underlayer with a (200) orientation, an hcp Co alloy interlayer having a [1120] orientation, a Ru spacer layer and a magnetic layer having an hcp [1120] structure (col. 8, lines 27-32; examples in col. 9-10 and Figs 3-4). The reference is silent with regard to the use of a granular oxide-containing magnetic layer.

Oikawa et al. teaches that it is known in the art to use granular magnetic recording layers in longitudinal recording for the purpose of reducing noise (see paragraph 6 for example).

It would have been obvious to one of ordinary skill in the art at the time of invention to add an oxide grain boundary material to the magnetic layers taught by Chen et al. in order to reduce medium noise as suggested by Oikawa et al.

7. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. (US 6759149) in view of Oikawa et al. (US 2003/0138671) further in view of Do et al. (US 6723450).

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The combination of Chen in view of Oikawa teaches all of the limitations of the claim, as detailed above, except for the use of a RuY second interlayer.

Do et al. teaches that it is known in the art to use materials such as Ru and RuCr for the spacer layer in between antiferromagnetically coupled magnetic layers. Thus, the reference teaches the functional equivalence of Ru and RuCr. See col. 3, lines 48-59.

It would have been obvious to one of ordinary skill in the art at the time of invention to substitute RuCr for the Ru layer taught by Chen et al. in view of the art recognized equivalence of the two materials. Substitution of equivalents requires no express motivation as long as the prior art recognizes the equivalency. *In re Fount* 213 USPQ 532 (CCPA 1982); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *Grover Tank & Mfg. Co. Inc V. Linde Air Products Co.* 85 USPQ 328 (USSC 1950).

8. Claims 18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. (US 6759149) in view of Oikawa et al. (US 2003/0138671) further in view of Bian et al. (US 6858331).

The combination of Chen in view of Oikawa teaches all of the limitations of the claim, as detailed above, except for the claimed Mrt orientation ratio (OR-Mrt) and the use of a textured substrate.

Bian et al. teaches that it is known in the art to improve magnetic performance by texturing a substrate and thereby providing an improved Or-Mrt of greater than 1. See col. 2, lines 31-55).

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It would have been obvious to one of ordinary skill in the art at the time of invention to texture the substrate taught by Chen et al. and thereby optimizing the OR-Mrt of the medium in order to achieve optimal magnetic performance. Such an optimization would have been well within the purview of one of ordinary skill in the art because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Holly Rickman whose telephone number is (571) 272-1514. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read "Holly Rickman", with a stylized flourish at the end.

Holly Rickman
Primary Examiner
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